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A new species of the spiny trapdoor spider genus *Eucyrtops* (Mygalomorphae: Idiopidae) from south-western Australia

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Abstract

The third species of the Western Australian endemic trapdoor spider genus *Eucyrtops*, *E. ksenijae* sp. nov., is described from south-western Australia. It is presently known from a single location situated near the border of the Avon Wheatbelt and Jarrah Forest bioregions.

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http://zoobank.org/References/51A0D07F-2265-487A-A692-394E0412875E

Introduction

The trapdoor spider family Idiopidae is widely distributed throughout the southern hemisphere, northern Africa and Asia. Ten of the 23 genera are endemic to Australia (Rix et al. 2017c; Wilson et al. 2020, 2021), with an eleventh, *Cantuaria* Hogg, 1902, also occurring in New Zealand (Rix et al. 2017c). The Australasian fauna comprises the endemic subfamily Arbanitinae, an ancient group that predominately occurs in temperate regions, although incursions into the arid zone have occurred in multiple lineages (e.g. Harrison et al. 2018; Rix et al. 2017a, c, 2018c).

The genus *Eucyrtops* Pocock, 1897 has a rather short taxonomic history, and has only ever included three species: the type species *E. latior* (O. Pickard-Cambridge, 1877) (which was originally described in the genus *Aganippe* O. Pickard-Cambridge, 1877), *E. eremaeus* Main, 1957 and *E. riparia* Main, 1957 (Main 1957; Pickard-Cambridge 1877). The latter was transferred to the genus *Bungulla* Rix, Main, Raven & Harvey, 2017 by Rix et al. (2017c), following the phylogenetic recognition and description of this closely-related genus (see Rix et al. 2017a, c, 2018b; Fig. 1). Species of *Eucyrtops* can easily be distinguished from other Arbanitinae by the presence of a trapezoidal (rarely subquadrate) eye group with a strongly procurved anterior eye row, combined with the presence of a strongly developed (usually proximally attenuate) retrolateral tibial apophysis, the presence of an unmodified (i.e. non-bifurcate) distal embolus, the absence of a median retrolateral digital process, and usually also the presence of a short distal retrolateral tibial apophysis on the male pedipalp (Rix et al. 2017c).

Members of the genus *Eucyrtops* are widespread throughout south-western Australia, and the genus is

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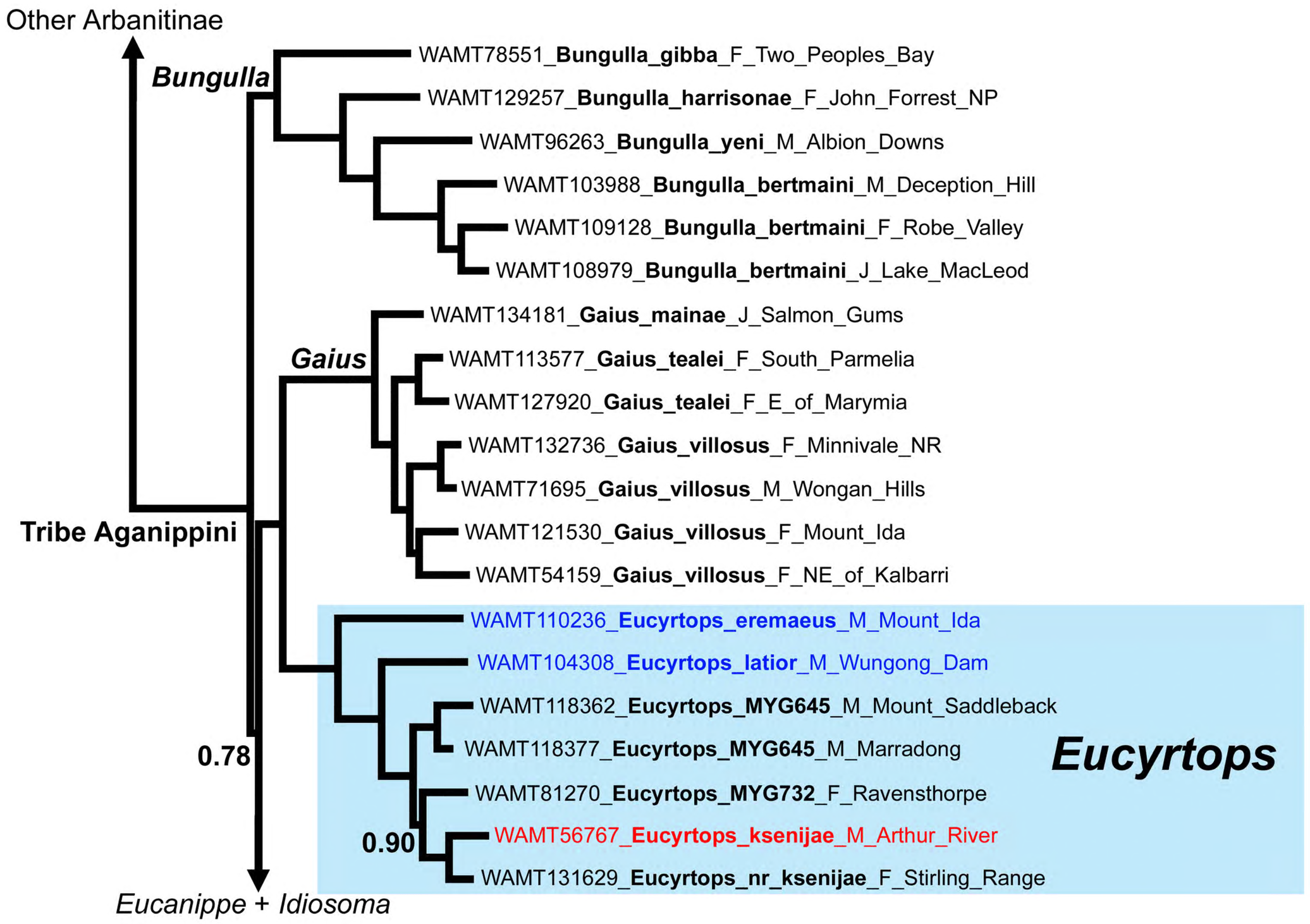

Figure 1. Summary phylogeny of the aganippine genera *Bungulla*, *Gaius* and *Eucyrtops*, derived from the 'FULL' 12-gene analysis of Rix et al. (2017a). Clade posterior probabilities are all >0.95 unless otherwise stated. Note the two previously described species of *Eucyrtops* (in dark blue), and *E. ksenijae* sp. nov. (in red).

much more diverse than the currently named fauna of just two species (Rix et al. 2017c). We here take the opportunity to describe the third species of the genus based on specimens collected within a small bushland remnant bordering the Jarrah Forest and Avon Wheatbelt bioregions of Western Australia (see Department of the Environment 2013). This species was previously sequenced for a molecular phylogenetic study of Australasian Idiopidae (Rix et al., 2017a; Fig. 1), and easily differentiated from named species on both morphological and molecular grounds.

This project represents a contribution to Taxonomy Australia (2020), a national initiative organised under the auspices of the Australian Academy of Science that brings together the taxonomic community to develop approaches that will significantly increase the rate at which new species are discovered, resolved and named, with a view to completely documenting the Australian biota within a generation.

Methods

Morphological methods, including specimen imaging techniques and the format of the species description, follow Rix et al. (2017c). Specimens are lodged at the Western Australian Museum, Perth (WAM), and the following descriptive abbreviations are used: ALE, anterior lateral eye/s; AME, anterior median eye/s; dRTA, distal retrolateral tibial apophysis (of male pedipalp); PLE, posterior lateral eye/s; PME, posterior median eye/s; RTA, retrolateral tibial apophysis (of male pedipalp).

Taxonomy

Family IDIOPIDAE Simon, 1889

Subfamily ARBANITINAE Simon, 1903

Tribe AGANIPPINI Simon, 1903

Genus *Eucyrtops* Pocock, 1897

Type species

Aganippe latior O. P.-Cambridge, 1877, by original designation

Diagnosis

See Rix et al. (2017c).

Description

See Rix et al. (2017c).

Eucyrtops ksenijae Rix & Harvey, sp. nov.

Figures 2–14

http://zoobank.org/NomenclaturalActs/10E2580B-D21A-4B65-AA11-B0EC8E2607BC

Type material

Holotype

AUSTRALIA: *Western Australia*: male, junction of Arthur River and Albany Highway, 33°16'22"S, 117°00'54"E, 6–11 July 2003, pitfall trap, M.S. Harvey, F. Harvey, E. Harvey (WAM T56767).

Paratypes

AUSTRALIA: *Western Australia*: 2 males, collected with holotype (WAM T56768, T56769).

Diagnosis

Males of *Eucyrtops ksenijae* sp. nov. can be distinguished from those of *E. eremaeus* by the presence of a trapezoidal eye group (Fig. 5) (subquadrate in *E. eremaeus*; see Rix et al. 2017c, fig. 212) and dark body colouration (Figs 2, 3) (pale tan in *E. eremaeus*; see Rix et al. 2017c, figs 207, 208); and from those of *E. latior* by the presence of a brush-like field of filiform setae on the retrodistal palpal tibia, adjacent to the dRTA (Figs 12, 13) (absent in *E. latior*; see Rix et al. 2017c, figs 234, 235), and by the shape of the RTA, which is broader and less acutely angled anteriorly (Figs 12, 13; cf. Rix et al. 2017c, figs 234, 235). Females are unknown.

Description

Holotype male (WAM T56767)

Total length 11.5. Carapace 5.3 long, 4.8 wide. Abdomen 5.0 long, 3.6 wide. Carapace dark chocolate-brown, with darker grey-brown patterning on pars cephalica and black ocular region (Fig. 2); fovea straight (Fig. 2). Carapace (Fig. 2) broadly oval; lateral margins with evenly-spaced fringe of porrect black setae. Eye group (Fig. 5) trapezoidal, PLE–PLE/ALE–ALE ratio 1.8; 0.7 × as long as wide; ALE separated by slightly more than their own diameter; AME separated by roughly their own diameter; PME separated by 4.2 × their own diameter; PME and PLE separated by slightly more than diameter of PME, with PME positioned slightly anterior to level of PLE. Maxillae with field of cuspules confined to inner corner (Fig. 6); labium without cuspules. Abdomen oval, slightly shrunken, charcoal-coloured in dorsal view (Fig. 3), with faint tan mottling and small beige-grey sigilla spots. Dorsal surface of abdomen covered with stiff, porrect black setae, each with slightly raised, dark brown sclerotic base; sclerotized sigilla absent. Legs dark brown, with scopulae on tarsi I–II; tibia I (Figs 9–11) bearing large prolateral clasping spurs. Leg I: femur 5.4; patella 2.7; tibia 3.8; metatarsus 4.1; tarsus 2.5; total 18.5. Leg I femur–tarsus/carapace length ratio 3.5. Pedipalpal tibia nearly 2.0× longer than wide; RTA long and pointed, slightly attenuate proximally and gradually tapering distally, with field of ca. 30 retrolateral spinules extending along most of length (Figs 12, 13); tibia also with field of spinules extending along retroventral edge, distal to base of RTA, longest distally (Figs 11, 12), adjacent to fringe of filiform setae; dRTA a low mound. Cymbium setose, with field of long spinules disto-dorsally (Figs 12–14). Embolus broad, strongly curved and sharply tapering subdistally (Figs 12, 13), with low, broadly triangular embolic extension subdistally (Fig. 13).

Remarks

The collecting site (Figure 15) is dominated by trees of the genera *Allocasuarina* and *Acacia* in an area that sits on the boundary of the Jarrah Forest and Avon Wheatbelt bioregions (Department of the Environment 2013). The surrounding region is heavily cleared for farming activities, with relatively little natural habitat remaining. Searches for burrows at the site where the males were collected have failed to locate any active burrows, which either signifies their rarity or the extremely cryptic nature of many idiopid burrows in Australia. However, the species is sympatric with *Idiosoma jarrah* Rix & Harvey, 2018 (Rix et al. 2018a), burrows of which have been found at the collecting site. Detailed surveys in adjacent areas will be needed to ascertain whether *E. ksenijae* occurs in other undisturbed sites in the local region, or whether it is a short-range endemic (Harvey 2002; Harvey et al. 2011) that has declined to such an extent that it is now threatened (Rix et al. 2017b).

Sequence data

The following sequence data for this species are available on GenBank (see Rix et al. 2017a):

Holotype male, WAM T56767: *COI* (KY295253), 18S rRNA (KY294742), 28S rRNA (KY294863), ITS1–5.8S rRNA–ITS2 (KY294999), *H3* (KY295126), *HAT1* (KY304520), *Cytb* (KY295376), *MRPL45* (KY295500), *RPF2* (KY295620), *XPNPEP3* (KY295747).

Etymology

This species is fondly named for Ksenija Leonija Elizabete Blosfelds (nee Koslowskis) (1906-2003), who passed away a few days before the type specimens were collected, and in recognition of her remarkable life.

Acknowledgments

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Figures 2–11. *Eucyrtops ksenijae* Rix & Harvey, sp. nov., holotype male (WAM T56767), somatic morphology: 2, 3, cephalothorax and abdomen, dorsal view; 4, cephalothorax, lateral view; 5, eyes, dorsal view; 6, mouthparts, ventral view; 7, 8, sternum and abdomen, ventral view; 9, leg I, prolateral view; 10, leg I tibia, clasping spurs, prolateral view; 11, leg I tibia, proventral view. Scale bars = 2 mm.

Figures 12–14. *Eucyrtops ksenijae* Rix & Harvey, sp. nov., holotype male (WAM T56767), pedipalp: 12, retrolateral view; 13, retroventral view; 14, prolateral view. Scale bar = 2 mm.

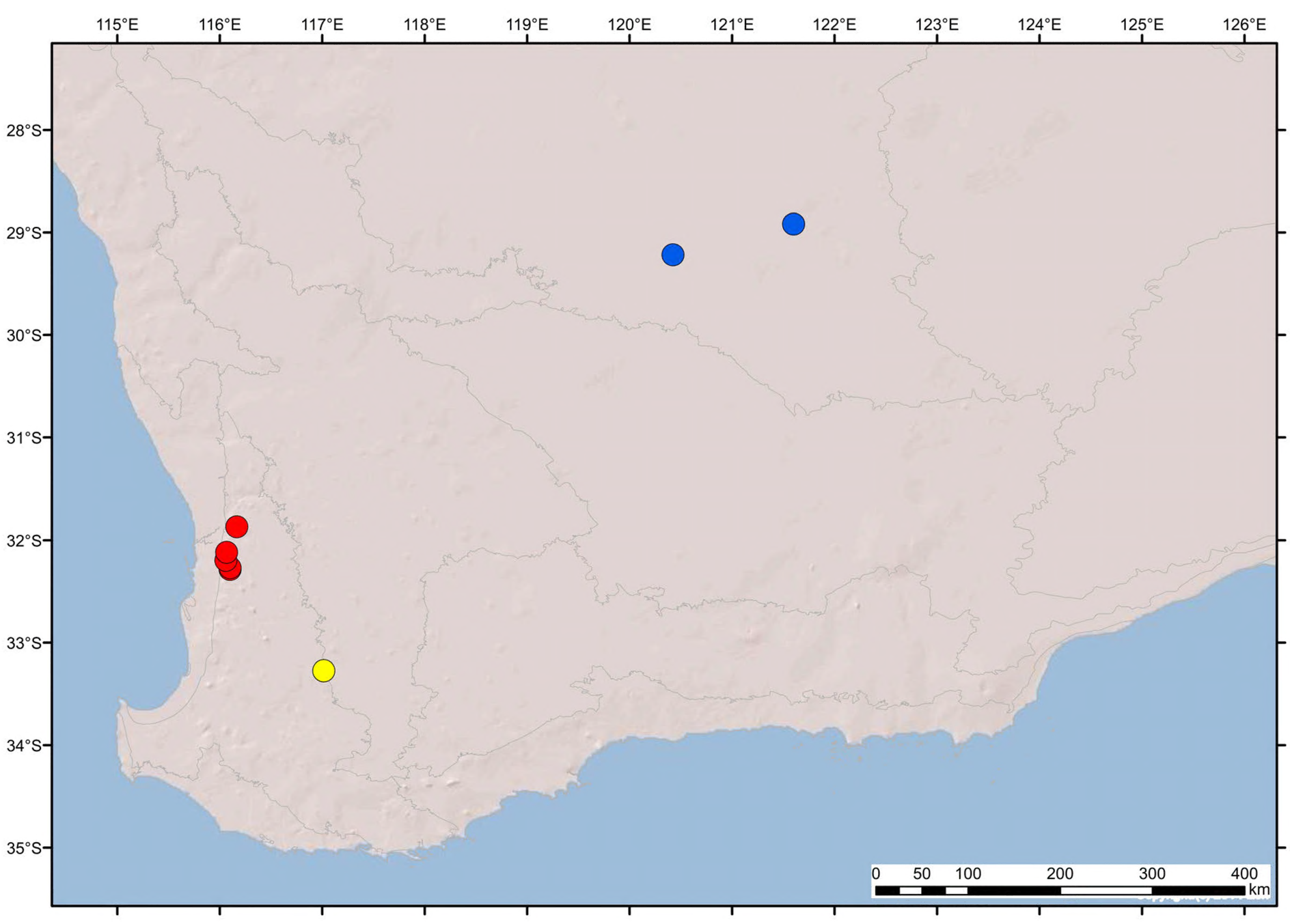

Figure 15. Map of south-western Australia showing the known distributions of the three named species of *Eucyrtops*: *E. latior* (O. Pickard-Cambridge, 1877) = red; *E. eremaeus* Main, 1957 = blue; *E. ksenijae* Rix & Harvey, sp. nov. = yellow.

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